

Tsuyama College		Year	2021	Course Title	Mechanics II
Course Information					
Course Code	0060		Course Category	General / Compulsory	
Class Format	Lecture		Credits	School Credit: 1	
Department	Department of Integrated Science and Technology Communication and Informations System Program		Student Grade	3rd	
Term	First Semester		Classes per Week	2	
Textbook and/or Teaching Materials	Textbooks : "Kougyo Rikigaku" (Morikita Syuppan), Distribution prints, Reference books : "Kougyo Rikigaku Reidai Ensyu" (Korona)				
Instructor	YAMAMOTO Yoshinori, SAEKI Fumihiko				
Course Objectives					
Learning purposes : The students develop their ability to analyze basic force and length of industrial products mainly with a focus on statics. Course Objectives : 1. To understand and calculate how to show force, moment and force acting on objects. 2. To understand center of mass and calculate center of mass of plain plate and solids. 3. To understand and calculate motion of a rigid body.					
Rubric					
	Excellent	Good	Acceptable	Not acceptable	
Achievement 1	The student can understand how to show force and moment, solve problems about force acting on object by law, figure and graph.	The student can understand how to show force and moment, solve problems about force acting on object.	The student can understand how to show force, moment and force acting on object.	The student has not achieved the level described in the column to the left.	
Achievement 2	The student can understand concept of center of mass, and calculate point of center of mass.	The student can understand concept of regular center of mass, and calculate point of center of mass.	The student can calculate regular point of center of mass.	The student has not achieved the level described in the column to the left.	
Achievement 3	The student can understand motion of various rigid bodies, express the motion in equation by law of motion and solve problems.	The student can understand motion of simple rigid body, express the motion in equation by law of motion and solve problems.	The student can calculate motion of simple rigid body by law of motion.	The student has not achieved the level described in the column to the left.	
Assigned Department Objectives					
Teaching Method					
Outline	General or Specialized : General Field of learning : Natural Sciences Common and Basic Foundational academic disciplines : Engineering / Mechanical Engineering Relationship with Educational Objectives : This class is equivalent to "(2) Acquire basic science and technical knowledge". Relationship with JABEE programs : The main goal of learning / education in this class is "(A)" is involved. Course outline : Industrial dynamics is a subject mainly about application of basic dynamics. Though student learn a little about law and principle of dynamics, it is difficult for them. In this subject static dynamics(balance of force) is explained about method of analyzing of engineering phenomena.				
Style	Course method : The subject is mainly conducted by writing on the blackboard. Grade evaluation method : Regular exams (70%) + Mini tests + Practice + Report (30%). Retaking exams will be carried out for the students who get under 60% in total score. The retaken exams are equivalent to the term exam. Students can use writing materials and calculator.				
Notice	Precautions on the enrollment : Students must take this class(no more than one-third of the required number of class hours may be missed) . Course advice : This subject is based on Physics and Mathematics, and basic level Physics and Mathematics are very important. As preparatory study to be done in advance, review the contents of Physics I and Physics II, which are the basic subjects. Foundational subjects : Physics I (1st year), Physics II (2nd) Related subjects : Mechanics I, III (3rd year) Attendance advice : This subject is one of the basic subjects of integrated engineering. The students are advised to solve the problems in textbooks of dynamics. You should prepare and review continually. Reports should be submitted by the deadline. Arriving (leaving) more than 20 minutes late (early) result in one absence, and arriving (leaving) more than 65 minutes late (early) result in two absences.				
Characteristics of Class / Division in Learning					
☐ Active Learning		☐ Aided by ICT		☒ Applicable to Remote Class	
				☐ Instructor Professionally Experienced	

Must complete subjects							
Course Plan							
			Theme		Goals		
1st Semester r	1st Quarter	1st	Guidance, Outline, Force, Composition and resolution of forces		The students can describe composition and resolution of forces at one point, and culcate composition and resolution force.		
		2nd	Moment, Couple of force, Displacement of of force, Composition of forces different of operating points		The students can understand moment, and calculate. The students can explain codition of balance of force different of operating points.		
		3rd	Balance of forces, Foce at contact point and fulcrum point		The students can explain codition of balance of force at one points.		
		4th	Composition of forces different of operating points		The students can explain composition of forces different of operating points.		
		5th	Center of mass and figure		The students can understand the meaning of center of mass, and calculate the point of center of mass and figure.		
		6th	Rotating body, Stability		The students can understand rotating body and stability.		
		7th	Motion of point, Linear motion, Plane motion, Circle motion		The students can understand velocity and acceleration.		
		8th	Mid-term exam				
	2nd Quarter	9th	Return and commentary of exam answers, Law of motion, Force of inertia, Centripetal force and centrifugal force		The students can understand law of motion, and culcate centripetal force and centrifugal force.		
		10th	Rotary motion and inertia of rigid body, Inertia theorem, Inertia of simple objects		The students can understand angular motion equation, and calculate torque acting on rigid body and inertia.		
		11th	Plane motion of rigid body, Motion equation		The studens can how to show equation of translational motion and rotary motion.		
		12th	Momentum and impulse, Angular momentum, Law of conservation of momentum, Collision		The students can explain momentum and law of conservation of momentum.		
		13th	Work, Energy, Power.		The students can understand work and energy, and calculate power.		
		14th	Slide friction, Rolling friction		The students can understand slide friction, and explain relation of frictional force and coefficient of friction.		
		15th	(Final exam)				
		16th	Return and commentary of exam answers				
Evaluation Method and Weight (%)							
	Examination	Presentation	Mutual Evaluations between students	Self review	Report	Mini test	Total
Subtotal	70	0	0	0	30	0	100
Basic Proficiency	70	0	0	0	30	0	100
Specialized Proficiency	0	0	0	0	0	0	0
Cross Area Proficiency	0	0	0	0	0	0	0